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ABSTRACT

A case study of a learning disabled 8-year-old with behavior disturbances is presented to highlight the use of operant conditioning in cutting down educational costs and easing the teacher's class management problems. (CL)

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# OPERANT CONDITIONING AND EDUCATION

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OPERANT CONDITIONING AND EDUCATION

Techniques of operant conditioning can be used successfully by parents and relatives of children with behavior disturbances, learning disabilities and physiological handicaps, helping to cut down educational costs and diminishing the teachers' burden in any classroom.

If the costs of education are brought down, more and more people will be able to get better education and financial difficulties of the underdevelloped or subdevelloped countries will be bypassed to enhance a better living to most of the human beings.

In one case study we can see how the costs of education can be brought down without lowering the standard and quality of education.

In a brief and concise way, we will try to describe how the therapy was done.

Alvaro is a child described in "Deficiência e Condicionamento Operante" (NORONHA, 1978a), "Training of the family for operant conditioning" (NORONHA, 1978b), "Family involvement makes education more economic" (NORONHA and NORONHA, 1978a), and "Integración y Condicionamiento Operante" (NORONHA and NORONHA, 1978b).

This premature baby was born at the end of 7 months of pregnancy with breathing difficulties and some gastro-intestinal disturbances. He was kept for about 2 months in the incubator.

During his first months of life, his mother noticed that the baby was not able to grasp and to hold anything in his hands.

Until the age of 3 years, he was not able to pronounce any word.

Having support and counselling from pediatricians and psychiatrists who used to do psychological assessment, this child was educated in a well equiped and sophisticated school from 5 to 8 years of age.

At the age of 8, in October 1976, the speech therapist who used to deal with him, told his mother that at the special school there were no technical means to educate that child. The boy had to stay at home without being admitted either to a public regular or private special school.

Other speech therapist and special education teacher did not want to take care of this child because he would not learn and specially because he had many disruptive behaviors.

At this stage, with the age of 8 (1st October 1976), the child had:

- vocabulary of less than 2 years of age;
- mental age of about 3 years;
- psychomotor disturbances although with possibilities of a child aged 5;
- behavior disruptions with many stereotypes and hyperactivity;
- enuresis;
- nail biting.

As the child had to stay at home and we had no other place to deal with her, we tried to conduct all the therapy at his home, in a public playground and in the open air. The "tools" we used were only his toys, a cassette tape recorder and a 35 mm. slide projector.

The techniques used were only modelling, prompting behavior and shapping, with more social than primary reinforcement.

People who acted as therapists and co-therapists were a psychologist, a consultant integration teacher, two teen-agers, a boy and a girl between 13 and 15 years, and three children aged from 2 to 7 years.

The total time spent in the therapy during 45 weeks, from November 1976 to September 1977, by the psychologist, consultant integration teacher and the two teen-agers, was accounted in 225 hours. The time spent by the parents and the other children was not accounted because we considered it as a normal setting possible to be furnished without further expenses.

The psychologist worked alone with the child during the first 40 weeks spending 135 hours, with a initial rate of 2.6 weekly hours and with the final rate of 5 weekly hours. In the last 5 weeks a socialization programme took place in the open air, at week-ends, having the psychologist, the consultant integration teacher and the two teen-agers spent 90 hours altogether, during these 5 weeks.

In the first weeks when the psychologist was working alone with the child, more than 25% of the time, the parents and or the teen-agers used to watch and listen, one at a time, to the psychologist/child interaction, from a place from where the interaction would not be disturbed.

The first approach made in this therapeutic situation, was to project slides of known things such as: meat, water, biscuits, etc, and name constantly the object. The child was stimulated with one or two words at a time during 5 to 10 minutes. His non disruptive behavior during the therapeutic sessions usually of about 50 minutes, was positively reinforced with some cuddles and smiles.

The child at the begining was able to pronounce only:
A, I, Dá, Bom, Papá (father, with accent on the last a), Mamã, Popó, Olha, Minha, Amanhã.

At the end of the 7th week of therapy, the child was able to pronounce correctly:
E, U, AA, EE, II, OO, UU, Pó, Pia, Avó.

The verbal behavior began to increase drastically at the end of the 33rd week having pronounced until there the following words:
O, Bota, Bola, Porta.

From the 33rd week until the 45th week, 42 more new words were summed to his vocabulary:
Avô, Um, Cú, Ôvo, Eu, Pápa (food, with accent on the first a), Olá, Não, Bombom, Lá, Pumba, Pipa, Caca, Taco, Uva, Banana, Batata, Pau, Luva, Lua, Ai, Au, Boi, Paco, Pato, Pai, Paio, AE, AO, EA, EI, EO, IA, IE, IO, IU, OA, OE, OI, OU, UA, Pinha.

These last sounds with two vowels were elicited to make the child get trained and acquainted with new and different sounds and to make him able to discriminate them. All the sessions were tape-recorded and played back to the child many times a day.

While the cild was trained in his word pronouncing ability he was stimulated to behave in a correct way, to educate his psychomotricity and to act properly in social settings. This last item was essentially done in a public playground and in open air with the colaboration of other children.

The parents and the teen-agers learned some fundamental notions of behavior modification, were stimulated to observe carefully the psychologist's interaction with the child and were debriefed after each therapeutic interaction with the child.

While the teen-agers' interaction hours are accounted in this paper , the parents' interaction hours are not mentioned but surely they are more than the total hours spent by the technicians.

New behaviors built up either because they were more correct than any others or to make the child drop the opposite behaviors, are described in table 1.

Alvaro's progress in "correct" behaviors

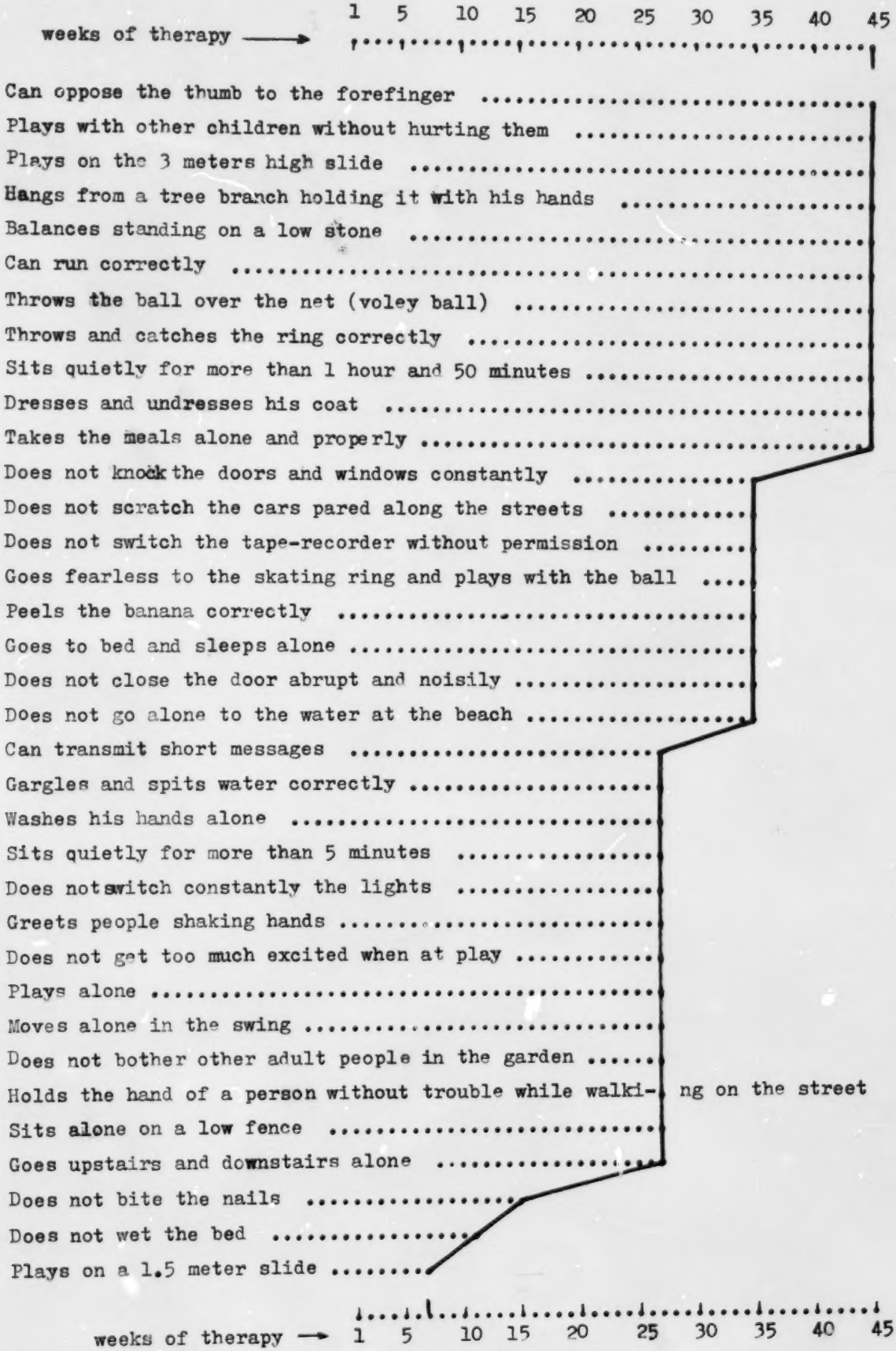
weeks of therapy → 1 5 10 15 20 25 30 35 40 45
Can oppose the thumb to the forefinger
Plays with other children without hurting them
Plays on the 3 meters high slide
Hangs from a tree branch holding it with his hands
Balances standing on a low stone
Can run correctly
Throws the ball over the net (voley ball)
Throws and catches the ring correctly
Sits quietly for more than 1 hour and 50 minutes
Dresses and undresses his coat
Takes the meals alone and properly
Does not knock the doors and windows constantly
Does not scratch the cars pared along the streets
Does not switch the tape-recorder without permission
Goes fearless to the skating ring and plays with the ball
Peels the banana correctly
Goes to bed and sleeps alone
Does not close the door abrupt and noisily
Does not go alone to the water at the beach
Can transmit short messages
Gargles and spits water correctly
Washes his hands alone
Sits quietly for more than 5 minutes
Does not switch constantly the lights
Greets people shaking hands
Does not get too much excited when at play
Plays alone
Moves alone in the swing
Does not bother other adult people in the garden
Holds the hand of a person without trouble while walking on the street
Sits alone on a low fence
Goes upstairs and downstairs alone
Does not bite the nails
Does not wet the bed
Plays on a 1.5 meter slide
weeks of therapy → 1 5 10 15 20 25 30 35 40 45

Table 1

The child was able to be integrated in a regular school with the support of a psychologist and a consultant integration teacher, but funds were not available and the boy had to return to a special school next academic year.

Having seen the possibilities offered, by the operant conditioning techniques, to people not specially trained, we can limit ourselves to the financial costs of these procedures. To make it easy compute in any country, we prefer to do all our accounts in hours of interaction technicians with children.

If we divide the total ammount of hours spent weekly by the technicians, administrative and auxiliary people by the number of children in a certain school, we will find a quocient that will be a ratio of interaction technicians/child . The greater the number indicating the ratio, the more expensive is the school.

Having done a survey among many regular and special schools, we can see the different mean ratios found in each case, described in table 2.

Ratios of interaction technicians/child each week (Hours)

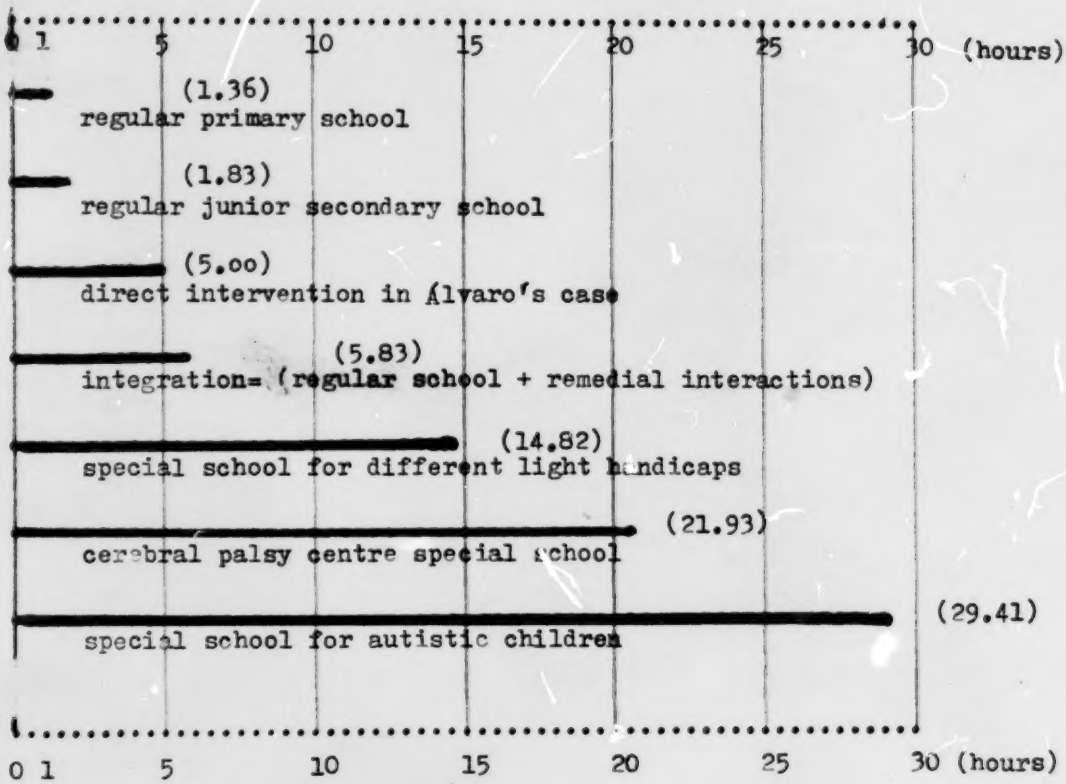


Table 2

In a regular primary school we found a mean ratio of 1.38 dividing 816 hours by 600 pupils.

In a mean regular secondary school we found a ratio of 1.83, dividing 2035 hours by 1686 pupils.

In a special school for light different handicapped children in Mira-Sintra, we found a ratio of 14.82, dividing 830 hours by 56 children.

In the Lisbon Cerebral Palsy Centre Special School, we found a ratio of 21.93.

In the Special School for Autistic Children in Lisbon, we found a ratio of 29.41, dividing 501 hours by 17 children.

If we compare all these ratios found in special schools, similar to the one where Álvaro was tried to be educated in the last three years and where he did not learn anything but "bad behaviors", with the ratio found in this special case, dividing the total amount of 225 hours by 45 weeks of therapy and then the amount of 5 weekly hours by one, we see that this ratio of 5 is less than half of the lowest ratio in a special school and less than a quarter of the ratio found with the special school for autistic children.

Not discussing that the education in normal setting is socially better than the education in special schools, we see that financially it is worth.

In another paper (NORONHA and NORONHA, 1976), we see how the integration or mainstreaming has been done and how it is worthy of doing specially because of the social advantages and academic achievement, but in "Family involvement makes education more economic" (NORONHA and NORONHA, 1978a) we see that it is also financially advantageous.

When the budget is small, how do the families expect to educate their handicapped children, specially when some mothers are at home doing almost nothing?

Some readings in the principles and techniques of operant conditioning, some advice and guidance of motivated and competent consultant psychologist, integration teacher, speech therapist and physiotherapist, are sufficient to make families cooperate in the education of their children and to make them acquire and devellop skills at a low cost and sometimes much better than in expensive special schools.

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